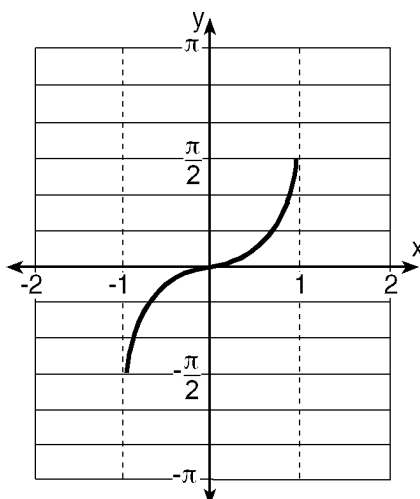


Name: \_\_\_\_\_

SHOW ALL WORK ON SEPARATE PAPER! This review is not comprehensive, be sure to study your old notes, tests, and homeworks as well.

- 1) If  $\cot \theta = 0.4$ , then  $\tan \theta =$ 
  - A)  $\frac{2}{5}$
  - B)  $\frac{5}{2}$
  - C)  $-\frac{5}{2}$
  - D)  $-0.4$
- 2) If  $\csc \theta = -2$ , what is the value of  $\sin \theta$ ?
  - A)  $2$
  - B)  $\frac{1}{2}$
  - C)  $-2$
  - D)  $-\frac{1}{2}$
- 3) If  $\cos \theta = -\frac{\sqrt{2}}{5}$ , then  $\sec \theta = \underline{\hspace{1cm}}$ .
- 4) If  $\csc \theta = -\frac{4}{3}$ , then  $\sin \theta = \underline{\hspace{1cm}}$ .
- 5) The domain of  $f(x) = \sin^{-1} x$  is
  - A)  $\{x \mid -\frac{\pi}{2} \leq x \leq \frac{\pi}{2}\}$
  - B)  $\{x \mid -1 \leq x \leq 1\}$
  - C) all real numbers
  - D)  $\{x \mid 0 \leq x \leq 1\}$
- 6) The domain of  $f(x) = \tan^{-1} x$  is
  - A)  $\{x \mid -\frac{\pi}{2} \leq x \leq \frac{\pi}{2}\}$
  - B)  $\{x \mid -\frac{\pi}{2} < x < \frac{\pi}{2}\}$
  - C) all real numbers
  - D)  $\{x \mid -1 \leq x \leq 1\}$
- 7) The function  $f(x) = \sqrt{x-4}$  is real for what values of  $x$ ?
  - A)  $\{x \mid x \geq 4\}$
  - B)  $\{x \mid x > 0\}$
  - C)  $\{x \mid x < 0\}$
  - D)  $\{x \mid x \leq 4\}$
- 8) What is the range of the function  $g(x) = \cos^{-1} x$ ?
  - A)  $\{y \mid -1 \leq y \leq 1\}$
  - B)  $\{y \mid 0 \leq y \leq \pi\}$
  - C) all real numbers
  - D)  $\{y \mid -\frac{\pi}{2} \leq y \leq \frac{\pi}{2}\}$

9) What is an equation of the graph shown below?



A)  $f(x) = \sin^{-1} x$

C)  $f(x) = \frac{1}{\cos x}$

B)  $f(x) = \cos^{-1} x$

D)  $f(x) = \frac{1}{\sin x}$

10) The expression  $\text{Arc cos } \left(\frac{1}{2}\right)$  is equal to

A)  $90^\circ$

B)  $45^\circ$

C)  $60^\circ$

D)  $30^\circ$

11) The expression  $\sec 19^\circ$  is equivalent to

A)  $\cos 71^\circ$

B)  $\frac{1}{\cos 71^\circ}$

C)  $\cos 19^\circ$

D)  $\frac{1}{\cos 19^\circ}$

12) The expression  $\sin \left(\text{Arc tan } \frac{5}{12}\right)$  is equal to

A)  $\frac{5}{13}$

B)  $\frac{13}{5}$

C)  $\frac{12}{13}$

D)  $\frac{13}{12}$

13) The expression  $\sin (\tan^{-1} \sqrt{3})$  has a value of

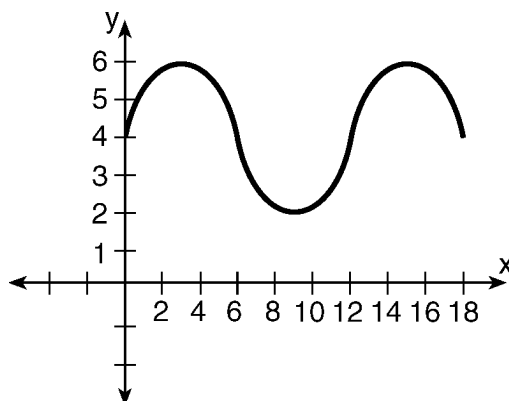
A)  $\frac{1}{2}$

B)  $\frac{\pi}{3}$

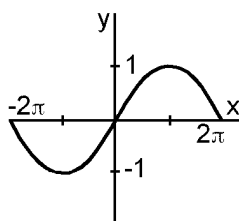
C)  $\frac{\pi}{6}$

D)  $\frac{\sqrt{3}}{2}$

- 14) What is the amplitude of the function shown in the accompanying graph?

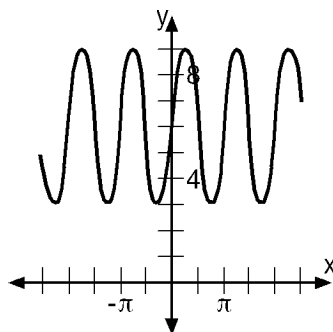


- A) 12                      B) 1.5                      C) 6                      D) 2
- 15) Determine the amplitude of the equation  $y = -4 \sin 2x$ .  
 A)  $\pi$                       B) 2                      C) -2                      D) 4
- 16) What is the frequency of the graph of the equation  $y = 3 \cos 4x$ ?  
 A)  $\frac{1}{2}$                       B)  $\frac{\pi}{2}$                       C) 3                      D) 4
- 17) What is the period of the graph below?



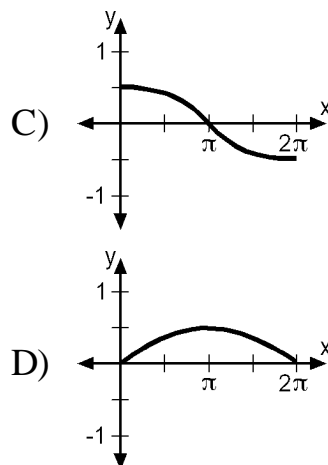
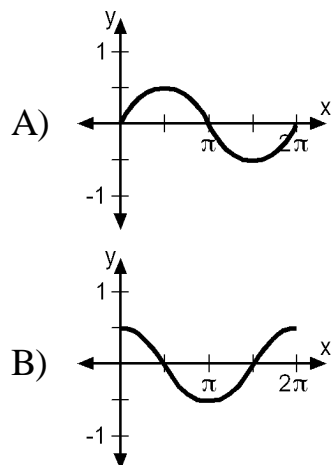
- A)  $\frac{4}{\pi}$                       B)  $\frac{\pi}{4}$                       C)  $4\pi$                       D)  $2\pi$
- 18) What is the period of the graph of the equation  $y = -6 \sin 2x$ ?  
 A)  $\pi$                       B)  $-6\pi$                       C)  $2\pi$                       D)  $-\frac{2}{6}$
- 19) Solve for the variable:  $|3y + 2| + 4 = 2$
- 20) What is the period of the graph of the equation  $y = -5 + 3 \cos \frac{3}{4}(x + 6)$ ?
- 21) What is the phase shift of the function  $f(x) = \sin(3x + 3)$ ?  
 A) 3 units right                      C) 1 unit left  
 B)  $\frac{2}{\pi}$  units right                      D)  $\frac{2}{\pi}$  units left

- 22) Given the graph of  $y = a \cos b(x + c) + d$ , determine the value of  $d$ .



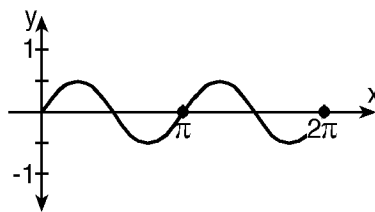
- A)  $\pi$                       B) 6                      C) 3                      D)  $\frac{\pi}{2}$
- 23) The graph of which function has amplitude 2 and period  $4\pi$ ?
- A)  $y = 2 \sin \frac{1}{2}x$                       C)  $y = 4 \sin \frac{1}{2}x$   
 B)  $y = 4 \sin 2x$                       D)  $y = 2 \sin 4x$
- 24) Write an equation for the sine curve whose period is  $\frac{2\pi}{3}$  and whose amplitude is 4.
- 25) Write an equation (in terms of cosine) that has a minimum of -1, a maximum of 9, a period of  $\frac{\pi}{3}$  radians, and a displacement of 2 radians to the right.
- 26) Given  $y = \frac{1}{2} \cos 2x$ , name:
- (a) amplitude
- (b) period in radians
- (c) frequency

- 27) Which graph represents the equation  $y = \frac{1}{2} \cos x$ ?



- 28) Find the 6th term of the arithmetic sequence with  $a_9 = 120$  and  $a_{14} = 195$ .
- 29) On the same set of axes, sketch the graphs of  $y = \sin x$ ,  $y = 2 \sin \frac{1}{2}x$ , and  $y = \frac{1}{2} \sin 2x$  over the domain  $\{x \mid 0 \leq x \leq 2\pi\}$ .
- 30) On the same set of axes, sketch the graphs of  $y = \cos x$ ,  $y = \frac{1}{2} \cos \frac{1}{2}x$ , and  $y = 2 \cos 2x$  over the domain  $\{x \mid 0 \leq x \leq 2\pi\}$ .
- 31) Solve for  $x$ :  $\log_3(x^2 - 4) - \log_3(x + 2) = 2$
- 32) The cost of pens varies directly as the number of dozens purchased. If 4 dozen cost \$10.60, how much will 7 dozen cost?
- A) \$18.65                      B) \$18.45                      C) \$18.75                      D) \$18.55

33) What equation is represented by the graph below?



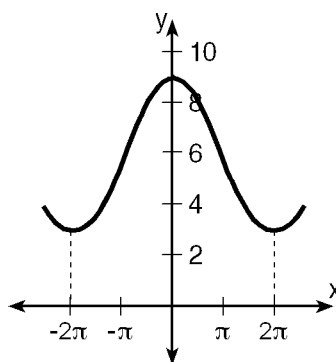
A)  $y = \frac{1}{2} \sin \frac{1}{2}x$

C)  $y = \frac{1}{2} \sin 2x$

B)  $y = 2 \sin 2x$

D)  $y = 2 \sin \frac{1}{2}x$

34) In terms of the cosine function, what is the equation of the graph below?



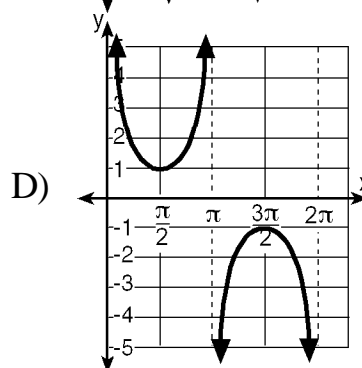
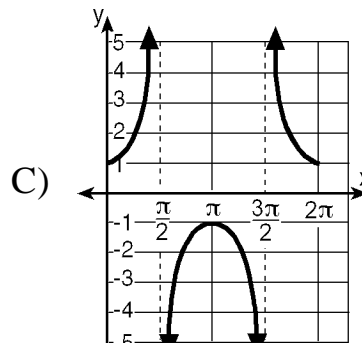
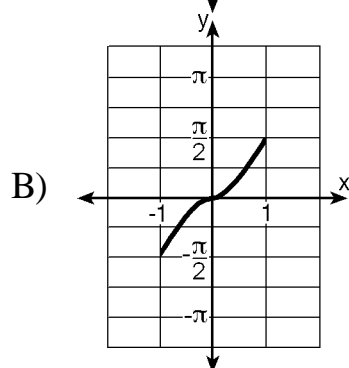
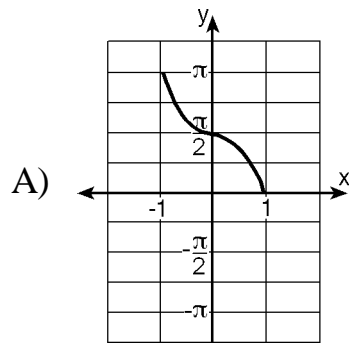
A)  $f(x) = 3 \cos \frac{1}{2}x + 6$

C)  $f(x) = 3 \cos 2(x + \pi) + 9$

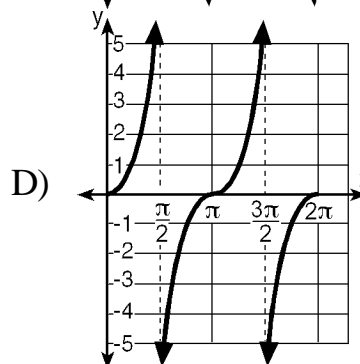
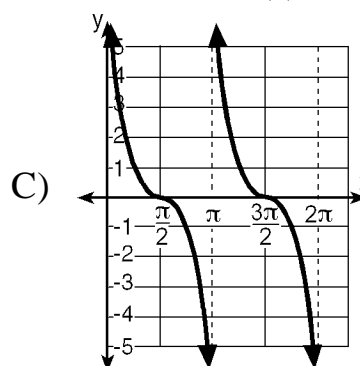
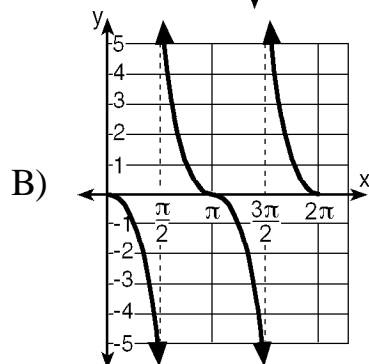
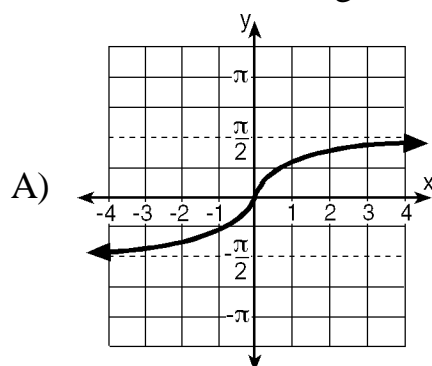
B)  $f(x) = \cos \frac{1}{2}x + 9$

D)  $f(x) = 3 \cos 2(x + \pi) + 6$

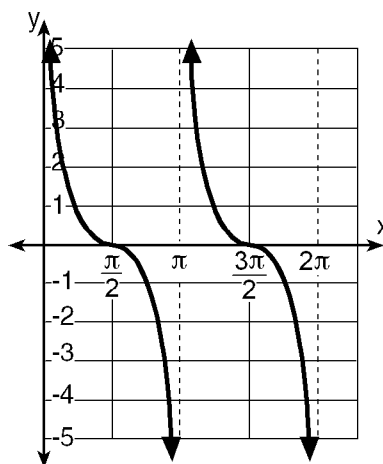
35) Which of the following *best* represents the graph of the function  $f(x) = \sec x$ ?



- 36) Which of the following *best* represents the graph of the function  $f(x) = \cot x$ ?



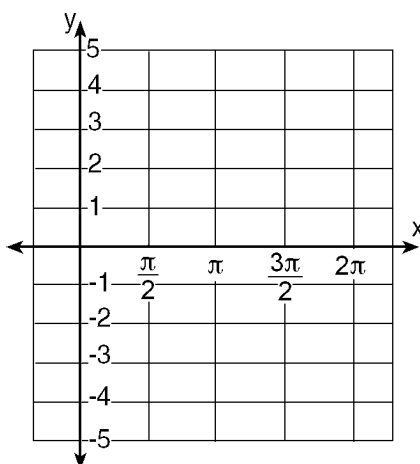
- 37) What is an equation of the graph drawn below?



- A)  $y = \cot x$       B)  $y = \tan^{-1} x$       C)  $y = \tan x$       D)  $y = -\tan x$

- 38) In the interval  $0 \leq x \leq 2\pi$ , state the value(s) for which the function  $y = \csc x$  is undefined.

- 39) (a) On the accompanying coordinate axes, sketch and label the graph of  $f(x) = \sin x$  for  $0 \leq x \leq 2\pi$ .
- (b) On the same axes, sketch and label the graph of  $g(x) = \csc x$  for the same interval.



- 40) A solution of the equation  $\sqrt{4 \sin x + 7} = 3$  is
- A)  $\frac{\pi}{2}$                       B)  $\frac{\pi}{6}$                       C)  $\frac{\pi}{3}$                       D)  $\frac{\pi}{4}$
- 41) What is the value of  $x$  in the equation  $\sqrt{x+1} - 2 = 5$ ?
- 42) Solve for *all* values of  $2 \sin x - 1 = 0$ , in terms of  $\pi$ , where  $0 \leq x < 2\pi$ .
- A)  $\frac{\pi}{3}$ , only                      B)  $\frac{\pi}{3}, \frac{2\pi}{3}$                       C)  $\frac{\pi}{6}$ , only                      D)  $\frac{\pi}{6}, \frac{5\pi}{6}$
- 43) What is the solution to  $2 \sin \theta - \sqrt{3} = 0$  when  $0 \leq \theta < 360^\circ$ ?
- A)  $60^\circ, 120^\circ$                       C)  $60^\circ, 300^\circ$   
 B)  $240^\circ, 300^\circ$                       D)  $30^\circ, 300^\circ$
- 44) What is the solution to  $7 \tan \theta - 5 = 0$  when  $0^\circ < \theta < 90^\circ$ ? [Round to the nearest tenth of a degree.]
- A)  $50.2^\circ$                       B)  $44.4^\circ$                       C) no solution                      D)  $35.5^\circ$
- 45) Simplify:  $\frac{\frac{2}{b} + \frac{b}{2}}{\frac{1}{2b}}$



